

This Page Is Inserted by IFW Operations  
and is not a part of the Official Record

## **BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning documents *will not* correct images,  
please do not report the images to the  
Image Problem Mailbox.**



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/994,936

11/28/2001

Sadashige Sugiura

60188-121

7332

20277

7590

11/15/2002

MCDERMOTT WILL & EMERY  
600 13TH STREET, N.W.  
WASHINGTON, DC 20005-3096

EXAMINER

HU, SHOUXIANG

ART UNIT

PAPER NUMBER

2811

DATE MAILED: 11/15/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/994,936

Applicant(s)

SUGIURA ET AL.

Examiner

Shouxiang Hu

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 September 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 3 and 6-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1 and 3-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 28 November 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All   b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.                      6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Priority*

1. This application claims priority under 35 U.S.C. 119 based on priority application serial No. 2000-360526, filed on November 28, 2000, in Japan.

### *Election/Restriction*

2. Claims 2 and 6-12 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 9.

Accordingly, claims 1-12 are pending in this application; and claims 1 and 3-5 remain active in this Office action.

### *Drawings*

3. The drawings are objected to because:

In Figs. 3A and 3B, many of the individual parts are designated by two different numbers, such as "33(28)", "42(41)", and "34(27)", among others. They fail to show whether and/or how the two deferent parts which are shown in Fig. 2 and designated by the two different numbers at a same port in Fig. 3 are connected together.

Art Unit: 2811

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Specification***

4. The disclosure is objected to because of the following informalities and/or defects:

On page 15, line 12, the term of "43a" should read as --43b--, for being consistent with what is shown in Fig. 2.

Page 16, line 6, through page 16, line 9, describe the subject matters that there is a forward current flow in either case of a negative voltage and a positive voltage being applied to a same pin "37(36)" shown in Fig. 3A. But, it fails to explain in a circuit in Fig. 3A how a forward current could possibly flow in a diode when a positive voltage is applied to the pin "37(36)".

Appropriate correction is required.

### ***Claim Objections***

5. Claims 1 and 3-5 are objected to because of the following informalities/defects:

In claims 1, 4 and 5, the term of "chip IP" should read as --intellectual property chip--, in order to better reflect the subject matter of a chip to be mounted on a wiring substrate, in view of the disclosure.

Art Unit: 2811

In claims 4 and 5, the term of "forming a protection diode" should read as --, and a protection diode--, since a diode cannot be formed by the recited line and node.

Also in claims 4 and 5, the term of "the test pad" should read as --said at least one test pad--, for being consistent what is defined in claim 1.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 3, as being best understood in view of the above objections to the claims and to the specification, are rejected under 35 U.S.C. 102(b) as being anticipated by Nakanishi et al. ("Nakanishi"; US 5,110,664).

Nakanishi discloses a semiconductor device (See Fig. 1), comprising: a semiconductor wiring substrate (17, 37 and 18) including a plurality of wires (13 and 29); a IC chip (1), which is regarded here as inherently having intellectual property and including a circuit having semiconductor device elements arranged therein; and at least one test pad (3) connected to at least one of the wires of the semiconductor wiring substrate. It is noted that the test pad (3) in Nakanishi is inherently capable of functioning as a test pad for testing an electrical connection between the circuit of the chip and the wires, as it is connected to both of the circuit and the wires.

Regarding claim 3, the test pad in Nakanishi is a portion of the at least one of the wires that is exposed on a surface of the semiconductor wiring substrate.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4 and 5, as being best understood in view of the above objections to the claims and to the specification, are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakanishi et al. ("Nakanishi"; US 5,110,664) in view of Voldman (US 5,625,280).

The disclosure of Nakanishi is discussed as applied to claims 1 and 3 above.

Nakanishi does not expressly disclose that the circuit in the chip can have a diode connected to a power supply line and a node and then to two test pads. However, one of ordinary skill in the art would readily recognize that a circuit in a chip can be protected by a diode, as evidenced in Voldman. Voldman (see Figs. 1-3, and col. 5, lines 19-24) teaches to protect a circuit from ESD damages by connecting a protection diode (27 or 28) between a node (26) and a line (a power supply line 10; or a ground line 13), wherein the node and the line are connected respectively to pads (26) and 11 (or the bottom left one).

Art Unit: 2811

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the pad-connected protection diode of Voldman into the device of Nakanishi, so that a semiconductor device with better chip protection would be obtained.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References C-E are cited as being related to a chip mounting and interconnection structure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shouxiang Hu whose telephone number is (703) 306-5729. The examiner can normally be reached on Monday through Thursday, 7:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (703) 308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.



Application/Control Number: 09/994,936

Page 7

Art Unit: 2811

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

A handwritten signature in cursive script, appearing to read "Shoosnaugh".

SH

November 14, 2002